

Amendments to the Abstract:

Please include an abstract as follows:

ABSTRACT OF THE DISCLOSURE

Apparatus and methods for measuring characteristics of a metallic target as well as other interior surfaces of a sputtering chamber. The apparatus includes a sensor configured to emit an energy beam toward a surface of interest and to detect an energy beam therefrom, the detected energy beam being indicative of parameters of a characteristic of interest of the surface of interest. Quantitative and qualitative characteristics of interest may be determined. A sputtering system including the apparatus and operable according to the methods of the invention is also disclosed.